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EXAMINER

PATEL, GAUTAM

ART UNIT PAPER NUMBER

2655

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5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/086,547

Applicant(s)

MATSUI, TAKUMI

Examiner

Gautam R. Patel

Art Unit

2655

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-162 is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☒ Claim(s) 25,51,79,105,133 and 159 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 2,5,7,19,31,33,45,56,61,73,85,87,99,110,113,115,127,139,141 and 153.

Continuation of Disposition of Claims: Claims rejected are 1,3,4,6,8-18,20-24,26-30,32,34-44,46-50,52-55,57,58,60-72,74-78,80-84,86,88-98,100-104,106-109,111,112,114,116-126,128-132,134-138,140,142-152,154-158 and 160-162.

DETAILED ACTION

1. Claims 1-162 are pending for the examination.

Election/Restriction

2. Claims 2, 5, 7, 19 31, 33, 45, 56, 59, 61, 73, 85, 87, 99, 110, 113, 115, 127, 139, 141 and 153 are withdrawn from further consideration by the examiner, 37 C.F.R. § 1.142(b) as being drawn to figs. Other than 1-2 and 10. Election was made with traverse of claims 1, 3-6, 8-18, 20-30, 32, 34-44, 46-55, 57-72, 74-98, 100-109 and 11-162 by the Applicants in paper no. 4 dated 5-3-04.

Applicant's election with traverse of group a in paper no. 4 dated 5-3-04 is acknowledged. The traversal is on the ground(s) that "the Examiner has failed to provide the required reasons and/or examples to support his conclusions. Without this, Applicants cannot understand the reasons for this restriction/election of species. In view of the assertion that Figures 2 to 9 contain patentably distinct species., Applicants believe the Examiner does not fully understand what the different figures illustrate....

Figs. 3-9 illustrate embodiments of a part or parts of the optical pick-up apparatus...As such, it is difficult for the Applicants to discern the reasons under which the Examiner required restriction/election of species....

Applicants additionally traverse the Election of Species Requirement because the Examiner has not shown that there would be serious burden to examine all of the pending claims together. ... Examiner has failed to even state that any such burden exists."

FIRST: As to the argument regarding claims 1, 29, 55, 83, 109 and 137 being generic. The Examiner agrees that these claims look generic in its present form.

SECOND: This is not found persuasive because, the Examiner does not need to show separate classification or field of search or reasons for election of the species requirement. See 803.00 and 808.01(a); M.P.E.P.

THIRD: As to Examiner not fully understanding what different figures illustrates, however, it should be pointed out that the Applicants themselves have created this

Art Unit: 2655

confusion by calling figure 2 and figure 3 as "first" and "second" embodiments in itself. The examiner merely trying bring these facts the Applicants attention. To simplify matters the examiner has taken into consideration this and taken figures 1-2 and 10 as figures being elected. The Examiner has added figure 10 as elected to simplify matters. Rest of the figures are distinct species and will be treated as such.

FOURTH: The reasons for restriction/election of species is two fold, first, the Applicants themselves have admitted that these are indeed different species and second looking at the specification and drawings they are indeed very different and distinct species for that particular part.

FIFTH: first, the Examiner does not need to show how much burden he has, second anybody with common knowledge of patent system can easily tell that 162 claims is indeed a very great burden on the Examiner. Also to correct the wrong election itself, it has already taken considerable amount of Examiners time. See 803.00 and 808.01(a); M.P.E.P.

The requirement is still deemed proper and is therefore made **FINAL**.

NOTE: It seems that the Applicants has NOT properly accounted for ALL the claims that needs not to be elected. For example 31 was NOT elected by the Applicants themselves, but they failed to notice that claims 5, 59, 85, 113 and 139 also are same or similar claims, and therefore by definition they cannot elected. There are six to eight similar mistakes. A typographical error is assumed.

3. After accounting for above errors elected claims 1, 3-4, 6, 8-18, 20-30, 32, 34-44, 46-55, 57-58, 60-72, 74-84, 86, 88-98, 100-109, 111-112, 114, 116-126, 128-138, 140, 142-152, 154-162 are pending for the examination.

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. § 119(a)-(d), which papers have been placed of record in the file.

Drawings/Objection

5. The drawings are objected for following reasons:

The drawings are objected to under 37 C.F.R. § 1.83(a). The drawings must show every feature of the invention specified in the claims. Drawing only shows one positive lens and one negative lens. Therefore, the positive and negative lens group must be shown or the feature cancelled from the claim. No new matter should be entered.

Correction is required.

Applicant is required to submit a proposed drawing correction in response to this Office Action or feature cancelled from the claim. Any proposal by the applicant for amendment of the drawings to cure defects must consist of following:

Drawing changes must be made by presenting replacement figures which incorporate the desired changes and which comply with 37 CFR 1.84. An explanation of the changes made must be presented either in the drawing amendments, or remarks, section of the amendment, and may be ***accompanied by a marked-up copy of one or more of the figures being amended, with annotations***. Any replacement drawing sheet ***must be identified in the top margin as "Replacement Sheet"*** and include all of the figures appearing on the immediate prior version of the sheet, even though only one figure may be amended. ***Any marked-up (annotated) copy showing changes must be labeled "Annotated Marked-up Drawings" and accompany the replacement sheet in the amendment (e.g., as an appendix).***

Specification/ Numerous errors in specification

6. The disclosure is objected for following reasons.

a. The title of the invention is neither precise nor descriptive. A new title is required which should include, using twenty words or fewer, claimed features that differentiate the invention from the Prior Art. It is recommended that the title should reflect the gist of or the improvement of the present invention.

Art Unit: 2655

b. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible errors.

35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are:

through out the specification meaningless text of numbers which do not relate to anything has been used such as - "pick-up apparatus of (1) is an optical pick-up apparatus which has .." .. [see page 6, paragraph 2] ; and "apparatus described in (12), the optical elements [see page 15, paragraph 3]. It is not clear at all what these numbers in brackets refer to and how they relate to invention.

Applicant's cooperation is requested in correcting any errors of which Applicant may become aware in the specification.

Corrections are required.

Claim Rejections - 35 U.S.C. § 112

7. The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 10-11, 15-18, 36-37, 41-44, 64-65, 69-72, 90-91, 95-98, 118-119, 123-126, 144-145, 149-152 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

A "positive lens group" and a "negative lens group" required by the claims is not described in the specification. On page 14, lines 10 the specification mentions a positive lens group but does not explain what these are and how they are created or how they relate to the invention and other components. Accordingly, the specification does not

Art Unit: 2655

explain to one of ordinary skill in the art at the time of the invention, how to make and or use the invention comprising the claimed so called "positive lens group".

8. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10-11, 15-18, 36-37, 41-44, 64-65, 69-72, 90-91, 95-98, 118-119, 123-126, 144-145, 149-152 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10, lines 3-4 "a positive lens group" having appositive refractive power .." is confusing and unclear, since no group has been defined or shown in the drawings at all.

Claim Rejections - 35 U.S.C. § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --
(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1, 6, 8-9, 20-21, 55, 57-58, 60, 62-63, 74-75, 109, 111-112, 114, 116-117, 128-129, 137-138, 140, 142-143 and 154-155 are rejected under 35 U.S.C. § 102(e) as being anticipated by Knight et al., US. patent 6,243,350 (hereafter Knight).

As to claim 1, Knight discloses the invention as claimed [see Figs. 2, 30B-30C and 31] including a light source, a converging optical system and recording layers comprising:

a light source [fig.2, unit 210] to emit a light flux [col. 8, lines 8-24]; and

a converging optical system [figs. 2 & 30B, units 230 and 3010] to converge the light flux emitted from the light source onto each information recording layer of the plurality of information recording layers [col. 42, line 60 to col. 43 line 12],

Art Unit: 2655

wherein the converging optical system converges a light flux having an image side-numerical aperture of 1.0 or more onto the each information recording layer so as to conduct recording and/or reproducing information for the each information recording layer [ABSTRACT, col. 2, line 30-43 and col. 9, line 57-62].

10. The aforementioned claim 6, recites the following elements, inter alia, disclosed in Knight:

a selecting device [inherently present when plural layers are present] to select an information recording layer from the plurality of information recording layers, wherein recording and/or reproducing is conducted for the selected information recording layer [col. 42, line 60 to col. 43 line 12 and col. 55, lines 22-37].

11. The aforementioned claim 8, recites the following elements, inter alia, disclosed in Knight:

wherein the selecting device changes a wavelength of the light source in accordance with the information recording layer to be conducted recording and/or reproducing [col. 42, line 60 to col. 43 line 12 and col. 55, lines 22-37].

12. The aforementioned claim 9, recites the following elements, inter alia, disclosed in Knight:

at a light source side of the final optical element is provided an optical element to change a degree of divergence or a degree of convergence of an incident light flux on the final optical element in accordance with the information recording layer to be conducted recording and/or reproducing [col. 43 lines 13-43 and col. 55, lines 22-37].

13. The aforementioned claim 20, recites the following elements, inter alia, disclosed in Knight:

wherein the converging optical system has an optical element having a aspherical surface [col. 16, line 14 to col. 17, line 7].

Art Unit: 2655

14. The aforementioned claim 21, recites the following elements, inter alia, disclosed in Knight:

the converging optical system has an optical element having a diffractive surface provided with a ring-shaped diffractive structure [col. 9, lines 10-27].

15. As to claim 55, it is rejected for same reasons set forth in the rejection of claim 1, supra.

16. As to claims 57-58, they are claims corresponding to claims 3-4 respectively and they are therefore rejected for the similar reasons set forth in the rejection of claims 3-4 respectively, supra.

17. As to claim 60, it is rejected for similar reasons set forth in the rejection of claim 6, supra.

18. As to claim 62, it is rejected for similar reasons set forth in the rejection of claim 8, supra.

19. As to claim 63, it is rejected for similar reasons set forth in the rejection of claim 9, supra.

As to claim 75, it is rejected for similar reasons set forth in the rejection of claim 21, supra.

20. As to claim 109, it is a method claim corresponding to claim 1 and is therefore rejected for similar reasons set forth in the rejection of claim 1, supra.

21. As to claims 111-112, they are claims corresponding to claims 3-4 respectively and they are therefore rejected for the similar reasons set forth in the rejection of claims 3-4 respectively, supra.

22. As to claim 114, it is rejected for similar reasons set forth in the rejection of claim 6, supra.

Art Unit: 2655

23. As to claim 116, it is rejected for similar reasons set forth in the rejection of claim 8, supra.

24. As to claim 117, it is rejected for similar reasons set forth in the rejection of claim 9, supra.

25. As to claim 129, it is rejected for similar reasons set forth in the rejection of claim 21, supra.

26. As to claim 137, it is a method claim corresponding to claim 1 and is therefore rejected for similar reasons set forth in the rejection of claim 1, supra.

27. As to the added limitation of transparent bas board; Knight discloses this at col.2, line 51 to col. 3, line 6 and figs. 24A and 24B.

28. As to claim 138, it is claim corresponding to claims 4 and is therefore rejected for the similar reasons set forth in the rejection of claim 4, supra.

29. As to claim 140, it is rejected for similar reasons set forth in the rejection of claim 6, supra.

30. As to claim 142, it is rejected for similar reasons set forth in the rejection of claim 8, supra.

As to claim 143, it is rejected for similar reasons set forth in the rejection of claim 9, supra.

31. As to claim 155, it is rejected for similar reasons set forth in the rejection of claim 21, supra.

32. As to claims 74, 128 and 154, they are claims corresponding to claim 20 and therefore they are rejected for the similar reasons set forth in the rejection of claim 20, supra.

Claim Rejections - 35 U.S.C. § 103

33. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2655

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-4, 29-30, 32, 34-35, 46-47, 83-84, 86, 88-89 and 100-101 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Knight as applied to claims 1, 6, 8-9, 20-21, 55, 57-58, 60, 62-63, 74-75, 109, 111-112, 114, 116-117, 128-129, 137, 138, 140, 142-143 and 154-155 above and in view of Lee et al., US. patent 6,621,787 (hereafter Lee).

Knight discloses all of the above elements, including the converging optical system and a gap between surfaces. Knight does not specifically disclose details of the gap such as gap being $\frac{1}{4}$ the wavelength.

However, it is well known in the art that gaps are function of the wavelengths and they are smaller than the wavelengths for controlling S/N ratio. Also Lee clearly discloses:

the converging optical system has a final optical element opposite to the optical information recording medium, a final optical surface of the final optical element locates close to the a surface of the optical information recording medium and a gap between the final optical surface and the surface of the optical information recording medium is smaller than a wavelength of the light source [col. 7, lines 1-17].

Both Knight and Lee are interested in improving near-field optics. Both Knight and Lee show a solid immersion optical system and related hardware.

One of ordinary skill in the art at the time of invention would have realized that the system of Knight would have been sensitive to noise and that noise would have compromised the quality of the electrical signals and reduction of noise is the good characteristics to have. Therefore, it would have been obvious to have used a gap of $\frac{1}{4}$ wavelength in the system of Knight as taught by Lee because one would be motivated to reduce noise in the system of Knight and provide better signal controls and improve

Art Unit: 2655

quality of the signal by reducing noise due to interference phenomenon [col. 7, lines 14-17; Lee].

34. The aforementioned claim 4, recites the following elements inter alia, disclosed in Lee:

the gap is not larger than $(1/4)$ of the wavelength of the light source [col. 7, lines 14-17; Lee].

35. As to claims 29 and 83 they are rejected for the similar reasons set forth in the rejection of claims 1 and 3, supra.

36. As to claims 30, 84, they are rejected for the similar reasons set forth in the rejection of claim 4, supra.

37. As to claims 32 and 86, they are rejected for the similar reasons set forth in the rejection of claim 6, supra.

38. As to claims 34 and 88, they are rejected for the similar reasons set forth in the rejection of claim 8, supra.

39. As to claims 35 and 89, they are rejected for the similar reasons set forth in the rejection of claim 9, supra.

40. As to claims 47, 101, they are rejected for the similar reasons set forth in the rejection of claim 21, supra.

41. As to claims 46 and 100, they are claims corresponding to claim 20 and therefore they are rejected for the similar reasons set forth in the rejection of claim 20, supra.

42. Claims 12-14, 38-40, 66-68, 92-94, 120-122, and 146-148 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Knight and Lee as applied to claims 1, 6, 8-

Art Unit: 2655

9, 20-21, 55, 57-58, 60, 62-63, 74-75, 109, 111-112, 114, 116-117, 128-129, 137,-138, 140, 142-143 and 154-155, 3-4, 29-30, 32, 34-35, 46-47, 83-84, 86, 88-89 and 100-101 above, and further in view of McDonald et al., US. patent 6,091,549 (hereafter McDonald).

Knight and Lee discloses all of the above elements, including the converging optical system and a $\frac{1}{4}$ wavelength gap between surfaces and a positive lens [fig. 30B, unit 3020] having a positive refractive power [col. 42, line 60 to col. 43, line 34; Knight]. Combination does not specifically disclose a negative lens to the extent claimed.

However, use of negative and positive lenses [or more precisely convex and concave lenses] is well known in the art for a long time. Also McDonald clearly discloses:

the optical element to change a degree of divergence or a degree of convergence comprises a positive lens [fig.2, unit 34] having a positive refracting power and a negative lens [fig. 2, unit 32] having a negative refracting power and wherein at least one of the positive lens and the negative lens is a displaceable element [inherently done to adjust the gap] [col. 5, lines 30-49].

All Knight, Lee and McDonald are interested in improving near-field optics. All shows a solid immersion optical system and related hardware and multiple layer discs.

One of ordinary skill in the art at the time of invention would have realized that cost is driving factor in design of any system and reduction of cost is important and also variation of numerical aperture should be kept to minimum.

Therefore, it would have been obvious to have used a negative lens in the system of Knight and Lee as taught by McDonald because one would be motivated to reduce number of components in system and thus reduce the over all cost of system and minimize the variation of numerical aperture thus improving the reliability of signals [col. 5, lines 38-49; McDonald].

43. The aforementioned claim 13, recites the following elements, inter alia, disclosed in McDonald:

Art Unit: 2655

the optical information recording medium has a first recording layer and a second recording layer provided in that order from a final optical element side, when recording and/or reproducing is conducted for the first recording layer, a gap between the positive lens and the negative lens is increased from the case that recording and/or reproducing is conducted for the second recording layer [col. 3, line 51 to col. 4, line 24].

44. The aforementioned claim 14, recites the following elements, inter alia, disclosed in McDonald:

the optical element to change a degree of divergence or a degree of convergence corrects a spherical aberration or an axial chromatic aberration interfering recording and/or reproducing information for the information recording layer to be conducted recording and/or reproducing [col. 3, line 51 to col. 4, line 24].

45. Claims 22-24, 48-50, 76-78, 102-104, 130-132 and 156-158 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Knight and Lee as applied to claims 1, 6, 8-9, 20-21, 55, 57-58, 60, 62-63, 74-75, 109, 111-112, 114, 116-117, 128-129, 137,-138, 140, 142-143 and 154-155, 3-4, 29-30, 32, 34-35, 46-47, 83-84, 86, 88-89 and 100-101 above, and further in view of Ichikawa et al., US. patent 6,054,503 (hereafter Ichikawa).

As to claim 22, Knight discloses all of the above elements, including the converging optical system. Knight does not specifically disclose that the optical system has an element made of plastic and of specific gravity of 2.0 or less to the extent claimed.

However, use of plastic elements of specific gravity of 2.0 is well known in the art for a long time. Also Ichikawa clearly discloses:

an optical element made of a material having a specific gravity of 2.0 or less [abstract and col. 1, lines 29-47].

Art Unit: 2655

One of ordinary skill in the art at the time of invention would have realized that weight of the system should be kept minimum and one of way to do this is to use plastic lenses instead heavy glass lenses.

Therefore, it would have been obvious to have used a plastic lens with specific gravity of less than 2.0 in the system of Knight as taught by Ichikawa because one would be motivated to reduce the weight of the over all system and thus reduce the over all cost of system [col. 1, lines 13-24; Ichikawa].

46. The aforementioned claim 23, recites the following elements inter alia, disclosed in Ichikawa:

the converging optical system has an optical element made of a plastic material [abstract and col. 1, lines 29-47].

47. As to claim 24, Knight and Ichikawa teaches all of the above elements. Combination does not specifically teach material having a saturation water absorption of 0.5% or less. "Official Notice" is taken that both the concept and the advantages of providing material having a saturation water absorption of 0.5% or less are well known and expected in the art. It would have been obvious to include material having a saturation water absorption of 0.5% or less to Knight as this less absorption material are known to provide the system with better optical characteristics and less weight thereby saving overall system cost. These concepts are well known in the art and do not constitute a patentably distinct limitation, per se [M.P.E.P. 2144.03].

48. As to group of claims 48-50, 76-78, 102-104, 130-132 and 156-158, they are claims corresponding to claims 22-24 and therefore they are rejected for the similar reasons set forth in the rejection of claims 22-24, supra.

49. Claims 26-28, 52-54, 80-82-106-108, 134-136, and 160-162 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Knight and Lee as applied to claims 1, 6, 8-9, 20-21, 55, 57-58, 60, 62-63, 74-75, 109, 111-112, 114, 116-117, 128-129, 137,-

• Art Unit: 2655

138, 140, 142-143 and 154-155, 3-4, 29-30, 32, 34-35, 46-47, 83-84, 86, 88-89 and 100-101 above, and further in view of Aarts et al., US. patent 6,594,205 (hereafter Aarts).

As to claim 26, Knight discloses all of the above elements, including the converging optical system. Knight does not specifically disclose that the well known diaphragms associated with actuators to the extent claimed.

However, use of diaphragms is well known in the art for a long time. Also Aarts clearly discloses:

at least two diaphragms to regulate an image side-numerical aperture for the plurality of information recording layers of the optical information recording medium [col. 6, lines 4-41 and fig. 3].

One of ordinary skill in the art at the time of invention would have realized that correction of spherical aberration is an important characteristic for better system signals.

Therefore, it would have been obvious to have used two diaphragms in the system of Knight as taught by Aarts because one would be motivated to reduce the aberration in the system and thus gain more accurate signals, thus increasing reliability of the system [col. 6, lines 4-14; Aarts].

50. The aforementioned claim 27, recites the following elements inter alia, disclosed in Aarts:

at least one of the at least two diaphragms is located between a final optical element and the optical information recording medium [col. 6, lines 4-41 and fig. 3].

51. As to claim 28, Knight and Ichikawa teaches all of the above elements. Combination does not specifically teach that optical element can be made by etching. "Official Notice" is taken that both the concept and the advantages of making material by etching are well known since 1957 and expected in the art. It would have been obvious to include an optical material formed by etching in the system of Knight as this kind of material are known to provide the system with better reliability less cost. These

• Art Unit: 2655

concepts are well known in the art and do not constitute a patentably distinct limitation, per se [M.P.E.P. 2144.03].

52. As to group of claims 52-54, 80-82, 106-108, 134-136, 160-162 they are claims corresponding to claims 26-28 and therefore they are rejected for the similar reasons set forth in the rejection of claims 26-28, supra.

53. A search based on the best understanding of the claims has been made to find the most pertinent art, but no statement about invention will be appropriate at this time regarding the allowableness of claims 10-11, 15-18, 36-37, 41-44, 64-65, 69-72, 90-91, 95-98, 118-119, 123-126, 144-145, 149-152 and no art rejection will be made in this office action regarding the claims 10-11, 15-18, 36-37, 41-44, 64-65, 69-72, 90-91, 95-98, 118-119, 123-126, 144-145, 149-152, due to the speculation required to interpret the claims because of their indefiniteness under 35 U.S.C. 112, 1st and 2nd paragraphs as noted above (see In re Steele, 134 USPQ 292).

Allowable Subject Matter

54. Claims 25, 51, 79, 105, 133 and 159 are objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

NOTE: Claim 25 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose an apparatus which includes an optical head which includes a converging optical system that has optical element "having an internal transmission rate of 85% or more at a portion having a thickness of 3 mm for the light flux having a oscillation wavelength of the light source". It is noted that the closest prior art, Knight shows a similar apparatus which has all the elements. However Knight fails to disclose an optical element having an internal transmission rate of 85% or more at a portion having a thickness of 3 mm for the light flux having a oscillation wavelength of the light source.

• Art Unit: 2655

Other prior art cited

55. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Hendriks et al. (US. patent 6,568,594) "Optical scanner device".
- b. Jain et al. et al. (US. patent 5,936,928) "Multi-layer media".
- c. Gelbart (US. patent 5,995,475) "Two dimensional laser ...".
- d. Andre (US. patent 3,589,812) "Process and device ...".
- e. Hackel et al. (US. patent 6,198,069) "Laser beam temporal ...".
- f. Ichimura et al. (US. patent 6,292,453) "Optical disc ..".
- g. March (US. patent 4,339,177) "Optical apparatus ...".
- h. Braat (US. patent 6,317,276) "Optical lens system ..".

Contact Information

56. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is (703) 308-7940. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2650) where this application or proceeding is assigned is (703) 872-9314.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Doris To can be reached on (703) 305-4827.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 305-4700 or the group Customer Service section whose telephone number is (703) 306-0377.



Gautam R. Patel
Primary Examiner
Group Art Unit 2655

GAUTAM R. PATEL
PRIMARY EXAMINER

July 15, 2004